

What is claimed is:

1. A secure data authentication apparatus to authenticate a software file, the software file having a first signature appended to the software file, for use on a computer system, the apparatus comprising:

a secure processing device within the computer system to receive the software file and hash the software file to produce a first hash value; and

a first key located within the secure processing device, wherein the secure processing device encrypts the first hash value with the first key to generate a second signature and compares the first signature with the second signature and if the first signature matches the second signature the computer system accepts the software file as being authenticated.

2. The secure data authentication apparatus of claim 1 wherein the software file further comprises a first source signature appended to the software file, the apparatus further comprising:

a source key located within the secure processing device, wherein the secure processing device encrypts the first hash value with the source key to generate a second source signature and compares the first source signature with the second source signature, and if the first source signature matches the second source signature the computer system accepts the software file as being authenticated from the source represented by the first source signature.

3. The secure data authentication apparatus of claim 1 wherein the software file further comprises a first owner signature appended to the software file, the apparatus further comprising:

an owner key located within the secure processing device, wherein the secure processing device encrypts the first hash value with the owner key to generate a second owner signature and compares the first owner signature with the second owner signature, and if the first owner signature matches the second owner signature the computer system accepts the software file as being authenticated.

10 4. The secure data authentication apparatus of claim 1, further comprising:

a key exchange request having a first key exchange signature appended thereto, the key exchange request sent from the computer system to the secure processing device, wherein the secure processing device hashes the key exchange request to generate a second hash value;

15 a first key exchange key located within the secure processing device, wherein the secure processing device encrypts the second hash value with the first key exchange key to generate a second key exchange signature and compares the first key exchange signature with the second key exchange signature, and if the first key exchange signature matches the second key exchange signature the secure processing device erases the first owner key; and

20 a second owner key within the key exchange request, wherein the secure processing device saves the second owner key.

5. The secure data authentication apparatus of claim 4, wherein the computer system further comprises a first feature file and the computer system performs in accordance with the first feature file, the apparatus further comprising:

a second feature file having a third owner signature appended thereto,
5 wherein the secure processing device hashes the second feature file to generate a third hash value which is encrypted with the second owner key to generate a fourth owner signature and compares the third owner signature with the fourth owner signature and if the third owner signature matches the fourth owner signature the computer system replaces the first feature file with the second feature file.

10 6. The secure data authentication apparatus of claim 1, wherein the program comprises a feature file having a plurality of features wherein a subset of the plurality of features are activated and the computer system operates in accordance with the subset of the plurality of features.

15 7. A secure data authentication apparatus to authenticate an owner of a software file and of a telephony switching system on which the software file is stored, the apparatus comprising:

a first feature file and a software file, the first feature file having a plurality of
20 features and a first owner signature appended thereto, wherein a first subset of the plurality of features is activated;

a secure microprocessor within the telephony switching system, the secure microprocessor having an encryption algorithm, wherein the secure microprocessor hashes the first feature file to generate a first hash value; and

a first owner key with in the secure microprocessor, wherein the secure microprocessor encrypts the first hash value with the first owner key to generate a second owner signature and the secure microprocessor compares the first owner signature with the second owner signature and if the first owner signature matches
5 the second owner signature the telephony switching system operates in accordance with the first subset of the plurality of features of the first feature file.

8. The secure data authentication apparatus of claim 7, the apparatus further authenticating a source of the software file, the apparatus further
10 comprising:

a first source signature appended to the first feature file; and

a source key located within the secure microprocessor, wherein the secure microprocessor encrypts the first hash value with the source key to generate a second source signature and the secure microprocessor compares the first source
15 signature with the second source signature and if the first source signature matches the second source signature the telephony switching system operates in accordance with the first subset of the plurality of features of the first feature file.

9. The secure data authentication apparatus of claim 7, further
20 comprising:

a second feature file having a second subset of the plurality of features activated, the second feature file having a third owner signature appended thereto; wherein the secure microprocessor receives the second feature file and hashes the second feature file to generate a second hash value and encrypts the second hash
25 value with the first owner key to generate a fourth owner signature and the secure

microprocessor compares the third owner signature with the fourth owner signature and if the third owner signature matches the fourth owner signature the second feature file is written over the first feature file.

5 10. A method for authenticating an owner of a software file having a first identification means attached thereto for use on a computer system, the computer system comprising a secure processing means having an encryption algorithm and a key, the method comprising:

 initiating the computer system;

10 hashing the software file within the secure processing means to generate a first hash value;

 encrypting the first hash value with the key to generate a second identification means; and

15 comparing the first identification means with the second identification means and if the first identification means matches the second identification means the computer system accepts the software file as being authenticated for the owners use.

20 11. A method for authenticating an owner of a software file having a first owner signature appended to the software file, for use on a computer system having a secure processing device to generate an authorization signal, the secure processing device comprising a security routine, an encryption algorithm and a first owner key, the process comprising:

25 receiving the software file by the computer system and sending the software file to the secure processing device;

hashing the software file to generate a first hash value;

encrypting the first hash value within the secure processing device with the first owner key to generate a second owner signature; and

comparing the first owner signature to the second owner signature, wherein

5 if the first owner signature and the second owner signature match the secure processing device generates the authorization signal.

12. The method for authenticating an owner of the software file of claim 11, wherein the software file further comprises a first source signature appended thereto and the secure processing device further comprising a source key; the method further authenticating a source of the software file, the method comprising:

10 encrypting the first hash value within the secure processing device with the source key to generate a second source signature; and

comparing the first source signature to the second source signature, wherein

15 if the first source signature and the second source signature match the secure processing device generates the authorization signal.

13. The method for authenticating an owner of the software file of claim 11, wherein the secure processing device further comprises a first key exchange key, the method further comprising:

20 receiving a key exchange request by the secure processing device, the key exchange request including an encrypted second owner key and having a first key exchange signature appended thereto;

hashing the key exchange request to generate a second hash value;

encrypting the second hash value with the first key exchange key to generate a second key exchange signature; and

comparing the first key exchange signature with the second key exchange signature, wherein if the first key exchange signature and the second key exchange signature match, the secure processing device decrypts the second owner key and replaces the first owner key with the decrypted second owner key.

14. The method for authenticating an owner of a software file of claim 13, wherein the key exchange request further comprises an encrypted second key exchange key, the authenticating method further comprising:

decrypting the encrypted second key exchange key with the first key exchange key; and

replacing the first key exchange key located within the secure processing device with the decrypted second key exchange key.

15. The method for authenticating a source and an owner of a software file of claim 13, wherein the computer system further comprises a first feature file having a first plurality of features wherein a first subset of the first plurality of features is activated and the computer system performs in accordance with the first subset of the first plurality of features, the method further comprising:

receiving a second feature file having a third owner signature appended thereto, the second feature file comprising a second plurality of features wherein a second subset of the second plurality of features is activated;

hashing the second feature file within the secure processing device to generate a third hash value;

encrypting the third hashed file with the second decrypted owner key within the secure processing device to generate a fourth owner signature; and

comparing the third owner signature with the fourth owner signature, wherein if the third owner signature matches the fourth owner signature the computer system overwrites the first feature file with the second feature file and the computer system performs in accordance with the second subset of the second plurality of features.

16. A method for authenticating a source of a software file having a first source signature appended to the software file, for use on a computer system having a secure processing device to generate an authorization signal, the secure processing device comprising a security routine, an encryption algorithm and a first source key, the process comprising:

receiving the software file by the computer system and sending the software file to the secure processing device;

hashing the software file to generate a first hash value;

encrypting the first hash value within the secure processing device with the first source key to generate a second source signature; and

comparing the first source signature to the second source signature, wherein if the first source signature and the second source signature match the secure processing device generates the authorization signal.

17. The method for authenticating the source of the software file of claim 11, wherein the software file further comprises a first owner signature appended

thereto and the secure processing device further comprising a owner key; the method further authenticating a owner of the software file, the method comprising:

encrypting the first hash value within the secure processing device with the owner key to generate a second owner signature; and

5 comparing the first owner signature to the second owner signature, wherein if the first owner signature and the second owner signature match the secure processing device generates the authorization signal.

18. A method for authenticating a software file from a PBX manufacturer, the software file comprising a feature file having a plurality of features wherein a subset of the plurality of features are activated, the software file operating on a PBX, the PBX comprising a secure microprocessor having an encryption algorithm and a first key, the method comprising:

10 hashing the feature file at the PBX manufacturer to generate a first hash value;

15 encrypting the first hash value with a second key to generate a first signature;

appending the first signature to the feature file;

20 receiving the feature file and appended first signature by the secure microprocessor;

hashing the received feature file within the secure microprocessor to generate a second hash value;

encrypting the second hash value with the first key to generate a second signature; and

comparing the first signature with the second signature and if the first signature matches the second signature the PBX accepts the software file as being authenticated.

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